

# Bibliography

- [1] R. A. Adams, *Sobolev Spaces*, Academic, press, New-York, 1975.
- [2] S. Agmon, A. Douglis and L. Nirenberg, Estimates near the boundary for solutions of elliptic partial differential equations satisfying general conditions, *Comm. Pure Appl. Math.*, **12** (1959), 623-727.
- [3] M.S. Agranovitch and M.I. Vichik, Elliptic problems with parameters and parabolic problems of general type, *Uspeki Mat. Nauk*, **19** (3) (1964), 53-161.
- [4] R. Anguelov, P. Kama and J.M-S. Lubuma, On non-standard finite difference models of reaction-diffusion equations, *Journal of Computational and Applied Mathematics*, **175**, (2005), 11-29.
- [5] R. Anguelov and J.M-S. Lubuma, On the non-standard finite difference method, Annual congress of the South African Mathematical Society, Pretoria, South Africa, 16-18 October 2000), *Notices of the South African Mathematical Society*, **31(3)**, (2000), 143-152.
- [6] R. Anguelov and J.M-S. Lubuma, Contributions to the mathematics of the non-standard finite difference method and applications, *Numerical Methods for Partial Differential Equations*, **17**, (2001), 518-543.
- [7] R. Anguelov and J.M-S. Lubuma, Non-standard finite difference method by nonlocal approximation, *Mathematics and Computers in Simulation*, **61**, (2003), 465-475.
- [8] I. Babuska, Finite element method for domains with corners, *Computing* **6**, (1970), 264-273.
- [9] C. Bernardi and Y. Maday, Spectral methods, in: P.G. Ciarlet and J.L. Lions (Editors), *Handbook of Numerical Analysis, Techniques of Scientific Computing*, Part 2, Vol v, North-Holland, Amsterdam, 1997, pp 209-485.
- [10] M. Brouilard, M. Dauge, M.-S. Lubuma and S. Nicaise, Coefficients of the singularities for elliptic boundary value problems on domain with conical points III: finite element methods on polygonal domains, *SIAM J. Numer. Anal.*, **29**,(1992), 53-63.
- [11] C. Canuto, M.Y. Hussaini, A. Quarteroni and T.A. Zang, *Spectral Methods in Fluid Dynamics*, Springer, Berlin, 1988.

- [12] H. Brézis, *Analyse Fonctionnelle Théorie et Applications*, Masson, Paris, 1983.
- [13] P.W.M. Chin, J.K. Djoko and J.M.-S Lubuma, Reliable numerical schemes for a linear diffusion equation on a non-smooth domain, *Applied Mathematics Letters*, **23**, (2010), 544-548.
- [14] P.W.M. Chin, J.M.-S Lubuma and K.C. Patidar, Regularity and discrete schemes for the heat equation on non-smooth domains. In: T.E. Simos and G. Maroulis (Editors), *American Institute of Physics-AIP Conference Proceedings* **963**, (2007), pp 1170-1173.
- [15] Y. Choquet-Bruhat, C. Dewitt-Morette and M. Dillard-Bleick, *Analysis, Manifolds and Physics*, Revised Edition, North-Holland Amsterdam, New York, Oxford: 1982.
- [16] P.G Ciarlet, *The Finite Element Method for Elliptic Problems*, North Holland, Amsterdam, 1978.
- [17] P. Clément, Approximation by finite element functions using local regularization , *RAIRO Anal. Numer.*, **R-2**, (1975), 77-84.
- [18] M. Dauge, Problème de Dirichlet sur un polyédre de  $\mathbb{R}^3$  pour un opérateur fortement elliptique, *Séminaire Equation aux Dérivées Partielles*, Nantes, (no 5), 1982-1983.
- [19] M. Dauge, *Elliptic Boundary Value Problem on Corner Domain*, Lecture Notes in Mathematics, Vol. 1341, Springer, Berlin, 1988.
- [20] R. Dautray and J.L. Lions, *Mathematical Analysis and Technology* Vol. 1, Evolution Problems, part II, Springer-Verlag, Berlin, 2000.
- [21] R. Dautray and J.L. Lions, *Mathematical Analysis and Technology* Vol. 5, Evolution Problems part I, Springer-Verlag, Berlin, 2000.
- [22] R.Dautray and J.L Lions, *Mathematical Analysis and Technology* Vol.6, Evolution Problems part II, Springer-Verlag, Berlin, 2000.
- [23] J. Deny and J.L. Lions, Les espaces du type de Beppo Levi, *Ann. Institut Fourier*, **v**, (1953-54), 305-370.
- [24] K. Djadel, S. Nicaise et J. Tabka, Some refined finite volume methods for elliptic problems with corner singularities, *J. of Finite Volumes*, **1**, (2004), 1-33.
- [25] R.G. Douglas, *Banach Algebra Techniques in Operator Theory*, Academic Press, New York, London: 1972.
- [26] H.G. Garnir, M. De Wilde and J. Schmet, *Analyse Fonctionnelle, Théorie Constructive des Espaces Linéaires à Semi-normes*, Birkhäuser-Verlag, Basel and Stuttgart, 1968.
- [27] J. Garsoux, *Espaces Vectoriel Topoloques et Distributions*, Collection Universitaire de mathématiques, Dunod, Paris, 1963.

- [28] V. Girault, P.A. Raviart, *Finite Element Methods for Navier-Stokes Equations: Theory and Algorithms*, Springer, Berlin, 1986.
- [29] P.Grisvard, *Elliptic Problems in Non-Smooth Domains* , Pitman, London, 1985.
- [30] P. Grisvard, Edge behavior of the solution of an Elliptic problem, *Math. Nachr.*, **132**, (1987), 281-299.
- [31] P. Grisvard, *Singularities in Boundary Value Problems* , Masson, Paris, 1992.
- [32] A.B. Gumel (Ed), *Journal of Difference Equations and Application*, Vol. **9**, (2003), Special Issue no 11-12 dedicated to Prof. R.E. Mickens on the occasion of his 60th birthday.
- [33] K. E. Gustafson, *Introduction to Partial Differential Equations and Hilbert Space Methods*, Wiley, New York, 1980.
- [34] B. Heinrich, The Fourier-finite element method for Poisson's equation in axisymmetric domains with edges, *SIAM J. Numer. Anal.* **33**, (1996), 1885-1911.
- [35] B. Heinrich, S. Nicaise, and B. Weber, Elliptic interface problems in axisymmetric domains ii. The Fourier-finite element approximation of non-tensorial singularities, *Adv. Math Sci Appl*, **10**, (2000), 571-600.
- [36] V. A. Kondratiev, Boundary problem for elliptic equations with conical or angular points *Trans. Moscow Math. Soc*, **16** (1967), 209-292, translated by Am. Math. Soc., 1968.
- [37] J.L. Lions, *Equations Differentielles Operationelles et Problèmes aux Limites*, Springer-Verlag, 1961.
- [38] J.L. Lions and E. Magenes , *Non-Homogeneous Boundary Value Problems and Applications* Vol.1, Springer-Verlag, New York, 1972.
- [39] J.L. Lions and E. Magenes , *Non-Homogeneous Boundary Problems and Applications*, Vol.2, Springer-Verlag, New York, 1972.
- [40] J.M.-S. Lubuma , *Introduction to Sobolev Spaces*, Lecture Notes, National Mathematical Center, Abuja, Nigeria, 1989.
- [41] J.M-S. Lubuma, Fourier series and integral equation method for the exterior stokes problem, *Numer Methods Partial Differential Eq*, **24** (2008), 699-727.
- [42] J.M-S. Lubuma and S. Nicaise, Dirichlet problems in polyhedral domains. 1. Regularity of the solutions. *Math. Nachr.* **168** (1994), 243-261.
- [43] J.M-S. Lubuma and S. Nicaise, Finite element method for elliptic problems with edge singularities. *Journal of computational and Applied Mathematics*, **106**, (1999), 145-168.

- [44] J.M-S. Lubuma and S. Nicaise, Edge behavior of the solution of the Stokes problem with applications to the finite-element method, *Proceedings of the Royal Society of Edinburgh*, **130A**, (2000), 107-140.
- [45] J.M-S, Lubuma and K.C. Patidar, Contributions to the theory of non-standard finite difference methods and applications to singular perturbation problems, In: R.E. Mickens (Editor), *Advances in the applications of Non-standard finite difference schemes*, World Scientific, Singapore, (2005), 513-560.
- [46] A. Maghnouji, *Problèmes elliptiques et paraboliques dans des domaines non-réguliers*, Thesis, University of Lille, (Lille), 1992.
- [47] A. Maghnouji and S. Nicaise, Interface problem with operators of different order on polygons, *Ann. Fac. Sci. Toulouse*, **1**, (1992), 187-209.
- [48] V. G. Maz'ya and B. A. Plamennevskii, On the coefficients in the asymptotics of solutions of elliptic boundary value problems near the edge, *Soviet Math. Dokl.*, **17**, **4**, (1976), 970-974.
- [49] V. G. Maz'ya and B. A. Plamennevskii,  $L_p$ -estimate of solutions of elliptic boundary value problems in domains with edges, *Trudy Moskov. Mat. Obshch.*, **37**, (1978), 49-93 (in Russian).
- [50] B. Mercier and G. Raugel, Résolution d'un problème aux limites dans un ouvert axisymétrique par éléments finis en  $r, z$  et séries de Fourier en  $\Theta$ , *RAIRO Modél, Math Anal. Numér.*, **16**(1982), pp. 405 - 461.
- [51] Y. Meyer, Wavelet and fast numerical algorithms In: P.G. Ciarlet and J.L. Lions (Editors), *Handbook of Numerical Analysis, Techniques of Scientific Computing*, Part 2, Vol. v, North-Holland, Amsterdam, (1997), pp 639-713.
- [52] R.E. Mickens, *Nonstandard Finite Difference Models of Differential Equations*, World-Scientific, Singapore, 1994.
- [53] R.E. Mickens (Editor) *Applications of Nonstandard Finite Difference Schemes*, World-Scientific, Singapore, 2000.
- [54] J. Nečas, *Les Méthodes Directes en Théorie des Équations Elliptiques*, Masson, Paris, 1967.
- [55] S. Nicaise, *Analyse Numérique et Équations aux Dérivées Partielles*, Cours et Problèmes Résolus, Dunod, Paris, 2000.
- [56] K.C. Patidar, On the use of Non-standard finite difference methods, *Journal of Difference Equations and Applications*, Vol. **118**, (2005), 735-758.

- [57] P. A. Raviart and J. M. Thomas, *Introduction à L'analyse Numérique des Équations aux Dérivées Partielles*, Masson, Paris, 1983.
- [58] G. Raugel, *Résolution numérique de problèmes elliptiques dans des domaines avec coins*. Thesis, University of Rennes, 1978.
- [59] G. Raugel, Résolution numérique par une méthode d'éléments finis problème Dirichlet pour le Laplacien dans un polygone', *C. R. Acad. Sci.Paris (Ser. A)*, **286**, (1978), A791-A794.
- [60] L. Schwartz , *Théorie des Distributions*, Hermann, Paris, 1966.
- [61] L. Schwartz, Théorie des distributions à valeurs vectorielles I, *Ann. Inst. Fourier*, **7**, (1957), 1-139.
- [62] L. Schwartz, Théorie des distributions à valeurs vectorielles II, *Ann. Inst. Fourier*, **8**, (1958), 1-209.
- [63] G. Strang and G. Fix, *An Analysis of the Finite Method*, Englewood Cliffs, Prentice-Hall, 1973.
- [64] F. Trèves , *Topological Vector Spaces, Distributions and Kernels*, New York, 1966.
- [65] V. Thomée, *Galerkin Finite Element Methods for Parabolic Problems*, Lecture Notes Math. 1054, Springer-Verlag, 1984.
- [66] W. Walter, *Ordinary Differential Equations*, Springer-Verlag Berlin, Heidelberg, New York, 1998.
- [67] K. Yosida, *Functional Analysis* , Springer-Verlag Berlin, Heidelberg, New York, 1968.